

CLAIMS:

1. A method for treating a bone condition, comprising administering to a patient in need thereof an effective amount of preptin, preptin analog, or a preptin agonist.
2. The method of claim 1, wherein the amino acid sequence of preptin is SEQ ID NO: 1, 2, or 3.
3. The method of claim 1, wherein the preptin agonist comprises a fragment or the entirety of the amino acid sequence of SEQ ID NO: 1, 2, or 3.
4. The method of claim 3, wherein the fragment is amino acid residues 17-34 of SEQ ID NO: 1, 2, or 3.
5. The method of claim 1, wherein the preptin agonist comprises an amino acid sequence that is at least 60% identical to SEQ ID NO: 1, 2, or 3.
6. The method of claim 5, wherein the preptin agonist comprises an amino acid sequence that is at least 80% identical to SEQ ID NO: 1, 2, or 3.
7. The method of claim 5, wherein the preptin agonist comprises an amino acid sequence that is at least 90% identical to SEQ ID NO: 1, 2, or 3.
8. The method of claim 5, wherein the preptin agonist comprises an amino acid sequence that is at least 95% identical to SEQ ID NO: 1, 2, or 3.
9. The method of claim 1, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 14 conservative amino acid substitutions.
10. The method of claim 9, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 10 conservative amino acid substitutions.

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11. The method of claim 9, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3
with up to 6 conservative amino acid substitutions.
12. The method of claim 9, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3
5 with up to 2 conservative amino acid substitutions.
13. A method for increasing or maintaining bone density, comprising administering to a
subject in need thereof an effective amount of preptin, preptin analog, or a preptin
agonist.
- 10 14. The method of claim 13, wherein the amino acid sequence of preptin is SEQ ID NO: 1, 2,
or 3.
- 15 15. The method of claim 13, wherein the preptin agonist comprises a fragment or the entirety
of the amino acid sequence of SEQ ID NO: 1, 2, or 3.
- 16 16. The method of claim 15, wherein the fragment is amino acid residues 17-34 of SEQ ID
NO: 1, 2, or 3.
- 20 17. The method of claim 13, wherein the preptin agonist comprises an amino acid sequence
that is at least 60% identical to SEQ ID NO: 1, 2, or 3.
18. The method of claim 17, wherein the preptin agonist comprises an amino acid sequence
that is at least 80% identical to SEQ ID NO: 1, 2, or 3.
- 25 19. The method of claim 17, wherein the preptin agonist comprises an amino acid sequence
that is at least 90% identical to SEQ ID NO: 1, 2, or 3.
20. The method of claim 17, wherein the preptin agonist comprises an amino acid sequence
30 that is at least 95% identical to SEQ ID NO: 1, 2, or 3.

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21. The method of claim 13, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 14 conservative amino acid substitutions.
22. The method of claim 21, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 10 conservative amino acid substitutions.
23. The method of claim 21, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 6 conservative amino acid substitutions.
24. The method of claim 21, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 2 conservative amino acid substitutions.
25. A method for stimulating osteoblast growth or modulating osteoblast apoptosis, comprising administering to a subject in need thereof an effective amount of preptin, preptin analog, or a preptin agonist.
26. The method of claim 25, wherein the amino acid sequence of preptin is SEQ ID NO: 1, 2, or 3.
27. The method of claim 25, wherein the preptin agonist comprises a fragment or the entirety of the amino acid sequence of SEQ ID NO: 1, 2, or 3.
28. The method of claim 27, wherein the fragment is amino acid residues 17-34 of SEQ ID NO: 1, 2, or 3.
29. The method of claim 25, wherein the preptin agonist comprises an amino acid sequence that is at least 60% identical to SEQ ID NO: 1, 2, or 3.
30. The method of claim 29, wherein the preptin agonist comprises an amino acid sequence that is at least 80% identical to SEQ ID NO: 1, 2, or 3.

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31. The method of claim 29, wherein the preptin agonist comprises an amino acid sequence that is at least 90% identical to SEQ ID NO: 1, 2, or 3.
32. The method of claim 29, wherein the preptin agonist comprises an amino acid sequence
5 that is at least 95% identical to SEQ ID NO: 1, 2, or 3.
33. The method of claim 19, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 14 conservative amino acid substitutions.
- 10 34. The method of claim 33, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 10 conservative amino acid substitutions.
35. The method of claim 33, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 6 conservative amino acid substitutions.
- 15 36. The method of claim 33, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 2 conservative amino acid substitutions.
37. An article of manufacture comprising:
20 a vessel containing preptin, preptin analog, or a preptin agonist; and
instructions for use of preptin, preptin analog, or a preptin agonist for treatment of a bone condition comprising administering an effective amount of preptin, preptin analog, or a preptin agonist to a patient.
- 25 38. An article of manufacture comprising:
packaging material; and
contained within the packaging material, preptin, preptin analog, or a preptin agonist;
wherein the packaging material comprises a label that indicates that preptin, preptin analog, or a preptin agonist can be used for treating a bone condition in a patient.

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39. Use of preptin, a preptin analog, or a preptin agonist in the manufacture of a medicament for treating a bone condition.
40. Use of preptin, a preptin analog, or a preptin agonist in the manufacture of a medicament for increasing or maintaining bone density.
41. Use of preptin, a preptin analog, or a preptin agonist in the manufacture of a medicament for stimulating osteoblast growth or modulating osteoblast apoptosis.
42. Use according to any of claims 39 to 41, wherein the amino acid sequence of preptin is SEQ ID NO: 1, 2, or 3.
43. Use according to any one of claims 39 to 41, wherein the preptin agonist comprises a fragment or the entirety of the amino acid sequence of SEQ ID NO: 1, 2, or 3.
44. Use according to claim 43, wherein the fragment is amino acid residues 17-34 of SEQ ID NO: 1, 2, or 3.
45. Use according to any one of claims 39 to 41, wherein the preptin agonist comprises an amino acid sequence that is at least 60% identical to SEQ ID NO: 1, 2, or 3.
46. Use according to claim 45, wherein the preptin agonist comprises an amino acid sequence that is at least 80% identical to SEQ ID NO: 1, 2, or 3.
47. Use according to claim 45, wherein the preptin agonist comprises an amino acid sequence that is at least 90% identical to SEQ ID NO: 1, 2, or 3.
48. Use according to claim 45, wherein the preptin agonist comprises an amino acid sequence that is at least 95% identical to SEQ ID NO: 1, 2, or 3.

49. Use according to any one of claims 39 to 41, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3 with up to 14 conservative amino acid substitutions.
50. Use according to claim 49, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3
5 with up to 10 conservative amino acid substitutions.
51. Use according to claim 49, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3
with up to 6 conservative amino acid substitutions.
- 10 52. Use according to claim 49, wherein the preptin agonist comprises SEQ ID NO: 1, 2, or 3
with up to 2 conservative amino acid substitutions.